

Appendix E

Session 3

Presentation Charts, Panel Responses, and Questions
and Answers



3.0 Project Development and Implementation Issues

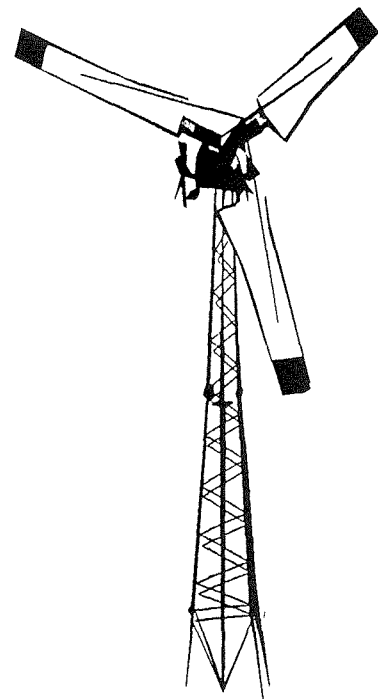
3.1 Panel 4: Project Development

3.1.1 Panel Chair:

Jan Hamrin – Hansen, McQuat, Hamrin & Rohde, San Francisco, CA

Presentation charts follow





HAWAII WINDPOWER WORKSHOP

Planning &
Implementation Issues

Honolulu, Hawaii

March 1994

Jan Hamrin

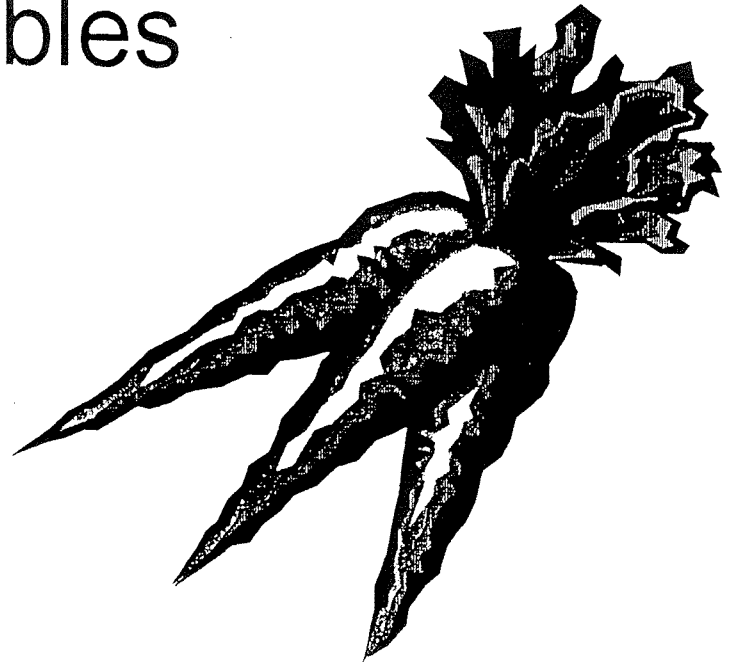
*Hansen, McOuat, Hamrin &
Rohde, Inc.*

50 California, Suite 3005, San Francisco CA 94111 Phone 415/397-2210

FAX 415/391-1329

Regulatory Treatment/ Utility Motivation

- ▶ Cost recovery issues
- ▶ Shareholder incentives
- ▶ Ownership structures
- ▶ Utility role in renewables





"Besides investing, merging, and expanding,
does anyone know how we can make a few bucks?"

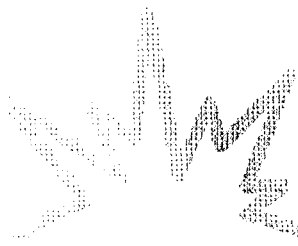


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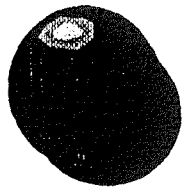


New Utility Paradigm

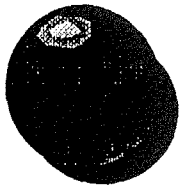
- ▶ Greater emphasis on the environment
- ▶ Greater concern over future risks:
 - Changing fuel costs
 - Changing environmental regulations
 - Changing utility structure
- ▶ More emphasis on what consumers want and need
- ▶ Greater use of market forces
- ▶ More emphasis on energy services



New Utility Paradigm



**GREATER FLEXIBILITY -
CONTRACTING/INVESTMENTS**

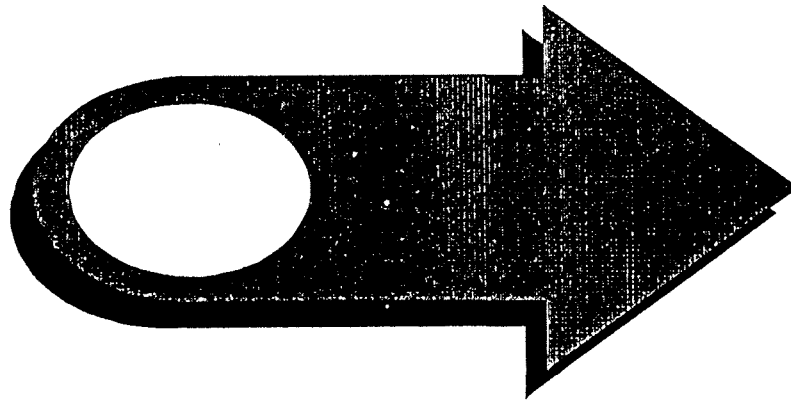


**HEDGING STRATEGIES -
PORTFOLIOS**



Acquisition Method

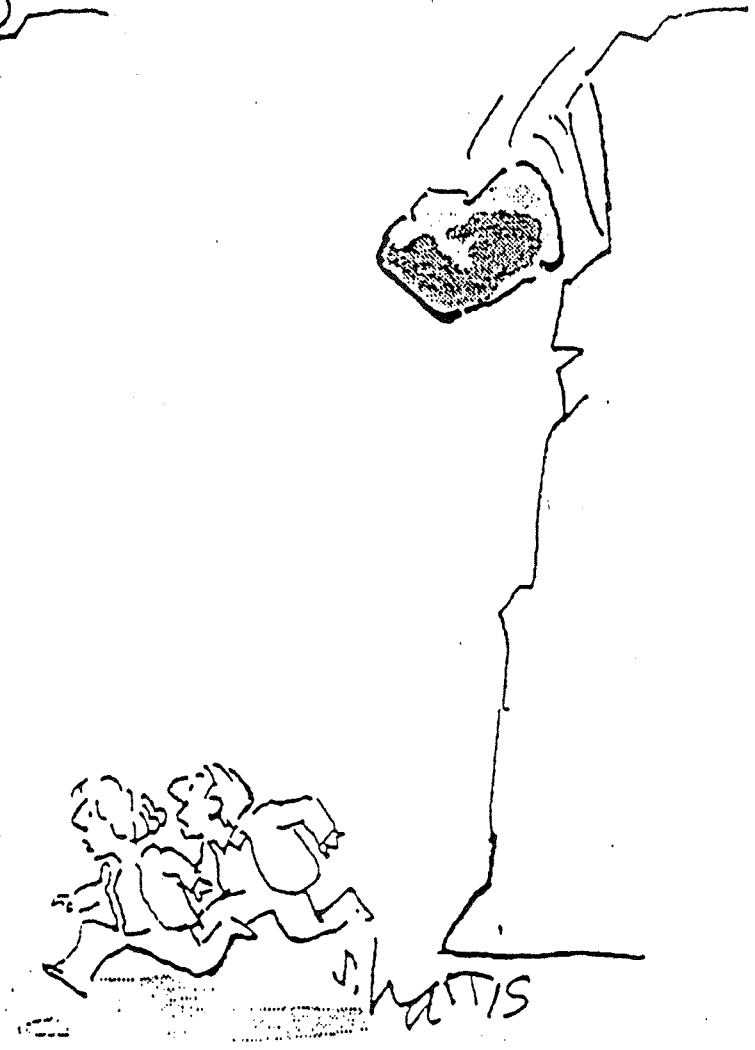
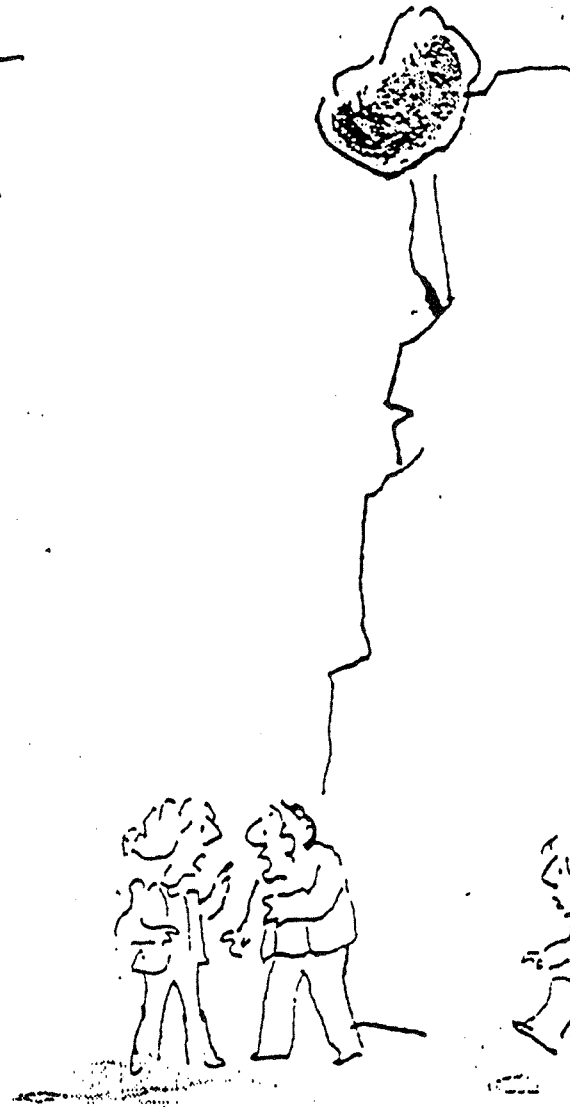
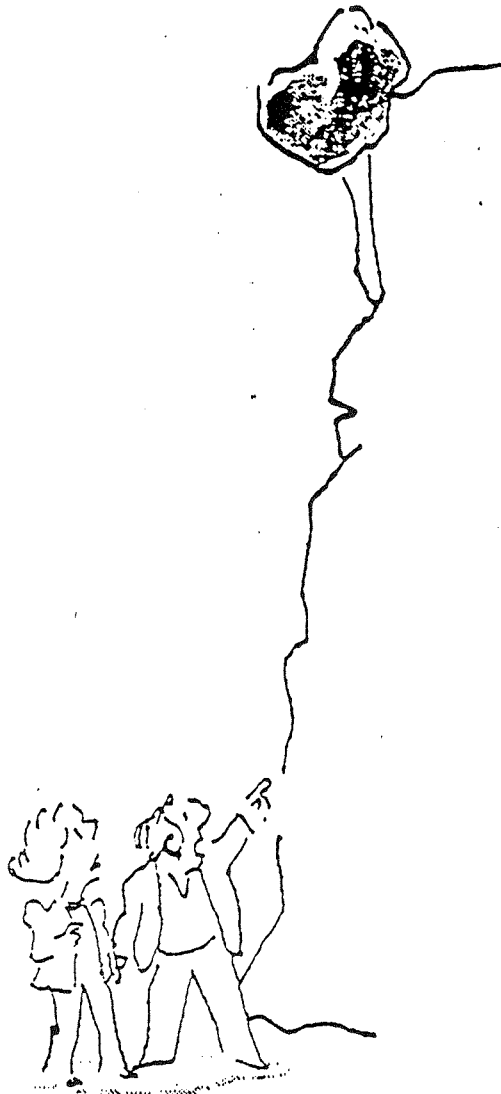
- ▶ Design to meet planning goals
- ▶ Start-up programs
- ▶ RD&D commercialization program
- ▶ Basic resource acquisition program



RISK
PERCEPTION

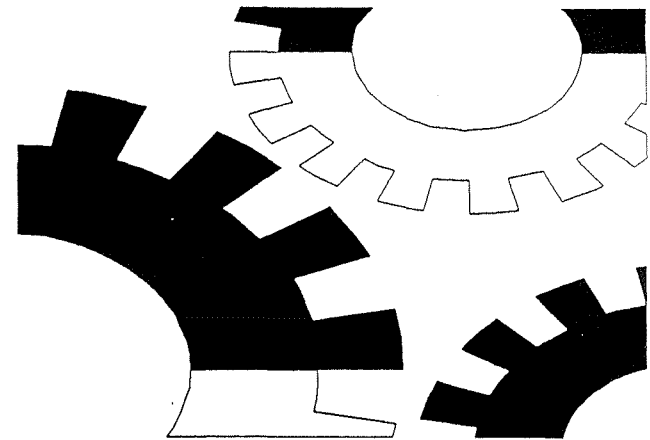
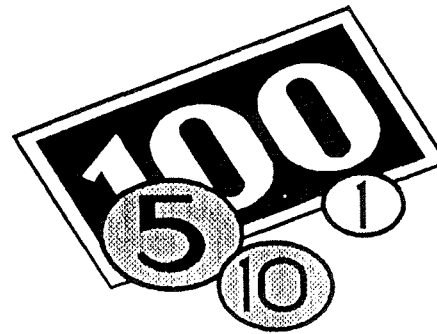
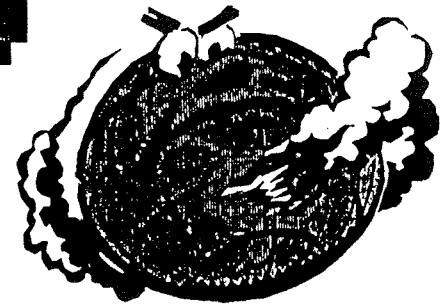
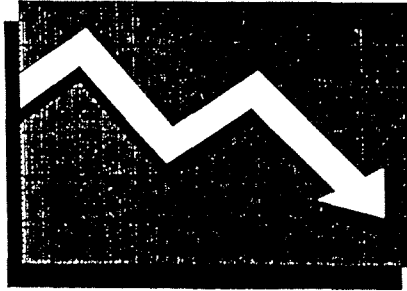
RISK
ASSESSMENT

RISK
MANAGEMENT



Allocation of Resource Acquisition Risks

- ▶ Forecasting
- ▶ Environmental
- ▶ Economic
- ▶ Technological



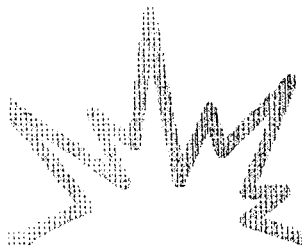


**What are the advantages and disadvantages
of different ownership arrangements?**

ISSUES AFFECTED BY OWNERSHIP:

- ➔ ALLOCATION OF RISK**
- ➔ UTILITY MOTIVATION TO ACQUIRE RRs**
- ➔ RECOVERY OF COSTS BY UTILITY**
- ➔ INTEGRATION OF FUTURE ROLE OF UTILITY**
- ➔ ABUSE OF MONOPOLY POWER**





Ownership Models

TRADITIONAL UTILITY OWNERSHIP

RISKS: Construction

Technology

Resource/Siting

O&M

Changed Envir. Regulation

Ratepayer

ADVANTAGES: Shareholder Benefits

DISADVANTAGES: Ratepayer/Shareholder

Financial Risk

Technology Risk

Cost-Plus Ratemaking

Ownership Models

NON-UTILITY OWNERSHIP

RISKS: Technology

Construction

Resource/Siting

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Developer

ADVANTAGES: Risk of Performance Transferred
To Developers

DISADVANTAGE: No Shareholder Benefits





Hybrid Ownership Models

TURNKEY PROJECTS - BUILD OWN TRANSFER (BOT)

RISKS: Technology

Resource-Siting

Initial Performance

O&M

Changed Envir. Regulation

Mixed

ADVANTAGES: Utility Gains Experience W/New
Technology

Reduced Technology Risks

Reduced Project Cost

Shareholder Benefits

DISADVANTAGE: Higher Performance Risk Than NUG Projects

Hybrid Ownership Models

BUY, OWN, OPERATE, TRANSFER - BOOT

RISKS: Technology

Resource-Siting

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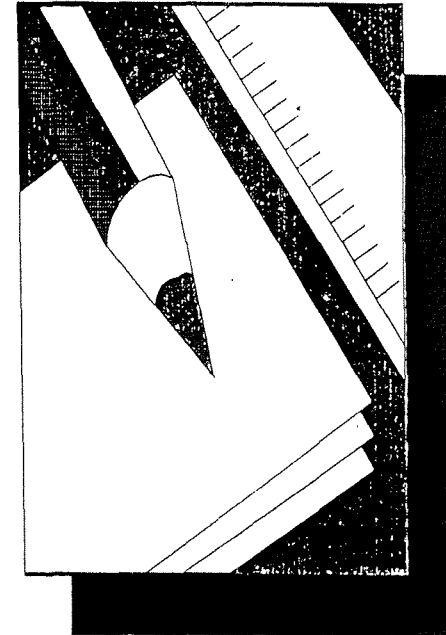
Developer/
Manufacturer

ADVANTAGES: Advantages of Non-Utility Contract
Shareholder Advantages

DISADVANTAGES: Terms/Conditions/Price Agreements
Complex
May Cost More

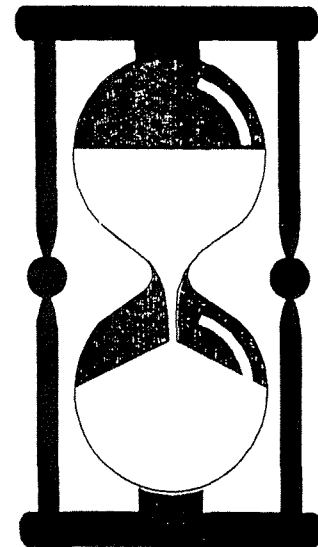
Important Contract Issues

- ▶ Financiability
- ▶ Pricing certainty
- ▶ Payment stream flexibility
- ▶ Interconnection issues
- ▶ Contract sanctity
- ▶ Curtailment/dispatchability issues
- ▶ As-delivered capacity
- ▶ Length of contract term



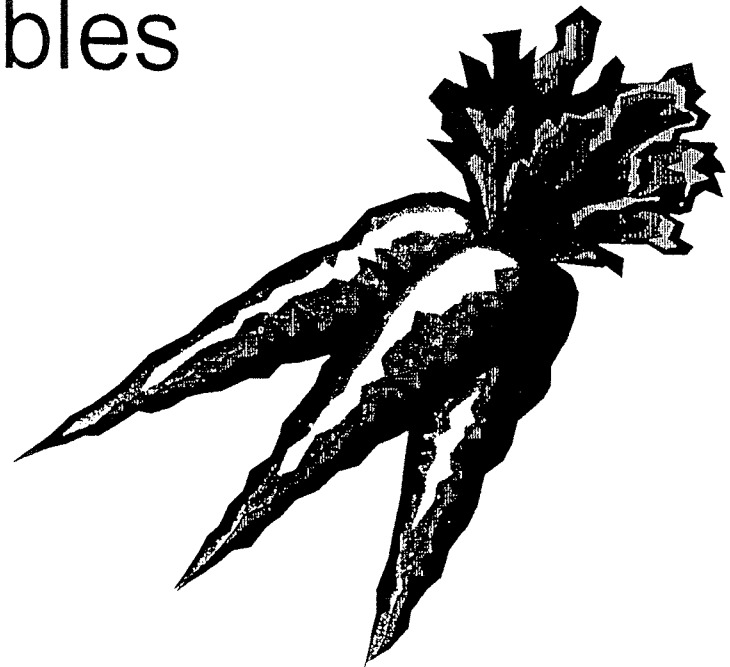
Resource Contracting

- ▶ Benefits of Standard Contract terms and conditions
 - Simplify negotiations
 - Reduce uncertainty; improve financing
 - Equity among participants
 - Better gauge of potential
 - Speed process



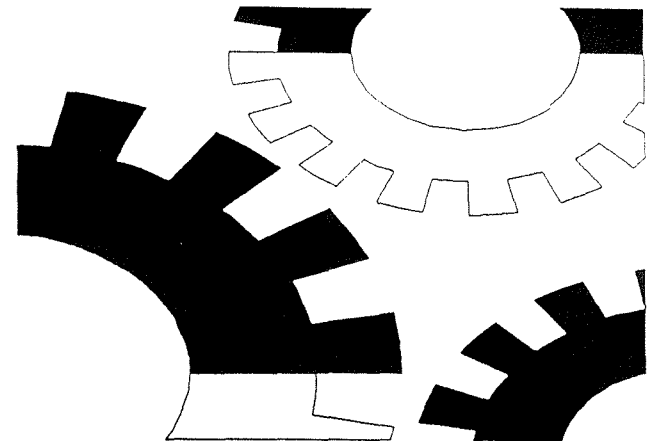
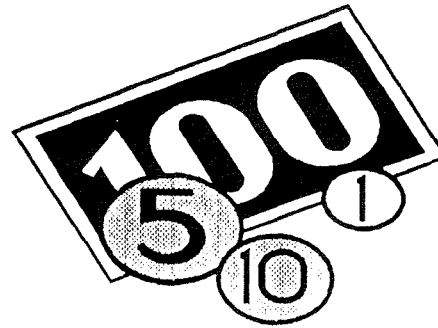
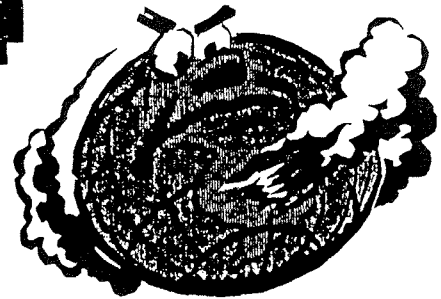
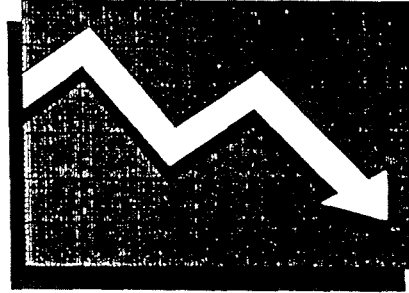
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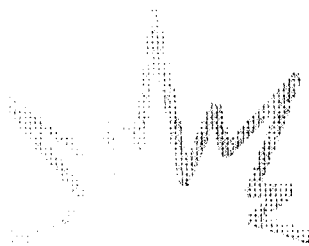
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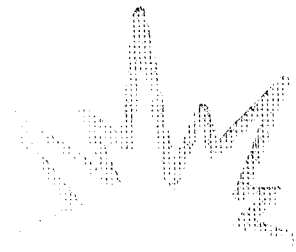
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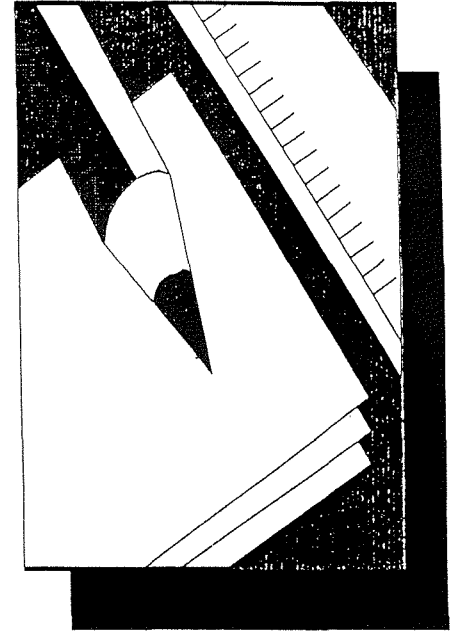
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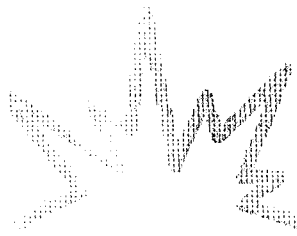
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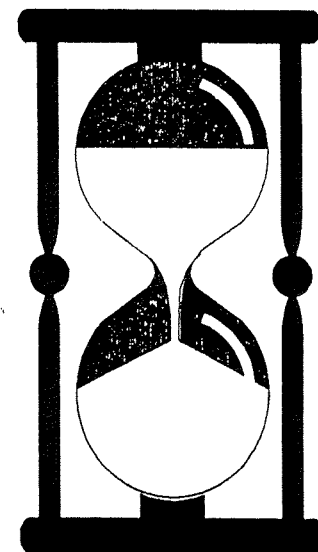
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3.1.2 Panel Members:

Dan Ching—Hawaiian Electric Company (HECO)

Curt Maloy—New World Power (NWP)

Keith Avery—Zond Systems

Panel Responses

Keith Avery – Zond Systems

Mr. Avery reviewed the process of obtaining permits in Hawaii. Wind is allowed in agriculturally zoned land. It is, however, qualified by a 30' height limitation. Anything over 30' requires a public forum which basically involves a variance hearing.

For land zoned for conservation use, a developer must obtain a conservation district use permit which brings in the environmental concerns such as an environmental assessment and an environmental impact statement along with ample opportunity for public participation. In addition, if your project is located on land near the coast, this qualifies it as a special management area which brings in planning concerns and the Special Use Commission.

Participation of the public is critical and the majority of people in Hawaii are fond of wind energy and look forward to it, according to Mr. Avery. In Hawaii, there are many activists and interveners so it is beneficial to your project that you go out to the impacted community initially and speak with them. Get a sense of their concerns and try to adjust your project to fulfill their needs as best you can. If you do this, things will work easier and faster.

In closing Mr. Avery encouraged participants to consider exploring uses for wind energy separate from the utility interconnect, such as utilizing wind power for pumping water and the desalination of water for Oahu and in a futuristic sense, utilizing wind energy for charging electric cars.

Dan Ching – Hawaiian Electric Power

Hawaiian Electric Co., along with its subsidiaries, Maui Electric Co. and Hawaii Electric Light Co., recognizes the development of a new utility paradigm and is in the process of developing a new strategic plan that recognizes the forces developing in the market. The plan will focus on:

- customer needs,
- corporate excellence in providing quality service,
- new and changing technologies and their impact on the future, and
- energy services which will become a larger portion of the utilities' business.

Mr. Ching acknowledged the utilities recognition of the movement away from a purely regulatory environment into a market driven environment with regulatory oversight. Still, he noted, the utilities are concerned with:

- the rate payer's needs,
- competitive costs and keeping these costs at a reasonable level, and
- maintaining excellent service.

Likewise, in the power purchase agreements, the utilities are concerned with, not just the needs of the power purchase producers, but with the interests of the shareholders and the rate payers. The utilities are concerned with costs being kept in line with avoided costs and concerned with the reliability of service provided by the power producers, he said.

For firm capacity producers, the issue of reliability is especially important which is why, in power purchase agreements, the utilities have set stringent standards for performance, written in liquidated damages and sanctions for non-performance. While requirements in the power purchase agreements for as-available producers are not as stringent, the utility is still concerned with safety requirements because of the need to protect the utility systems from damages, he said.

Mr. Ching stated that the utilities in Hawaii have historically been supportive of non-utility generated power and continue to purchase as-available power from renewable energy sources, primarily power from bagasse energy from the operation of sugar plantations on all three islands (Oahu, Hawaii and Maui) as well as maintaining the firm capacity contract with the H-power plant, a renewable energy derived from the burning of municipal solid waste.

At the same time, he added, the utilities are concerned with prudent management from a regulatory perspective because all of our power purchase contracts must be approved by the PUC.

"The PUC has taken a very active role, especially in firm capacity contracts and have informed us that they will re-look at these contracts if they think we are not administering them as prudently as they think we should," he said.

The regulatory treatment for non-fossil fuel producers has been encouraging, according to Mr. Ching. Through a legislative process, minimum purchase rates have been established for renewable technology sources. It works this way, if you are a renewable energy source producer and you come to the utility with a proposal, the utility will pay the purchase rates based on the avoided rates in effect at the time the contract was approved by the PUC.

"We view this as a definite incentive to renewable energy sources," he said in closing.

Curt Maloy – New World Power

Power quality, an issue touched on in session 2, is becoming increasingly important in the context of project development, according to Mr. Maloy.

"Our ability to affect smaller consumer grids is directly related to the quality of our product in the next generation of technology," he said. "There is no doubt about it, we have to solve this problem by designing better products to eliminate this key argument and make wind power more acceptable to the utilities."

Mr. Maloy added that the industry recognizes this and is taking steps in their designs to provide better products.

Visual impact is an issue, Mr. Maloy believes can be solved through a concerted education effort. Referencing a situation in Palm Springs in which New World Power was involved in the development of a wind power project, he illustrated how efforts at educating can successfully work toward eliminating opposition to wind power.

"We started with a small group, in the face of horrendous opposition, in Palm Springs. For two and a half years, we provided books to schools and made ourselves available to service groups and chamber meetings. We eliminated the opposition to such an extent that we ended up being fought over by three different communities to annex these areas to get a hold of the property tax revenues. They love us now," he said.

Dr. Hamrin added that in addition to education, careful siting and careful design can also help to eliminate opposition and improve the visual impact of wind turbines.

Question:

What is the panels reaction to some of the alternative ownership arrangements suggested in Jan Hamrin's presentation?

Answer:

Curt Maloy – New World Power

From New World Power's perspective, all of these alternatives have potential. The fact that there are a variety of alternatives available is simply going to make it more attractive for the utilities to select what type of projects they are going to want to provide for.

Keith Avery -Zond Systems

There will be more participation in these alternatives when the utility overcomes its fears resulting from being an early pioneer in wind energy, he said adding that the technology has advanced significantly since then.

"There are a lot of things we can do if both sides want to work together," he said.

Dan Ching –Hawaiian Electric Company

Speaking on behalf of the utilities, Mr. Ching added that they are always open to new proposals and will take a look at every one of them.

Question:

It looks as though some of these alternative ownership arrangements might present more complicated negotiations. Are there any examples of these kinds of arrangements that have been completed that utilities and developers might look to for guidance?

Answer:

Jan Hamrin - Hansen, McQuat, Hamrin & Rohde

Probably none that are available, Dr. Hamrin said noting that projects such as these have been completed but are probably not public.

The key is communication between willing partners who can clarify their needs in such a way that an agreement is designed to cover, as much as possible, the situations that need special consideration.

Dr. Hamrin depicted the standard contract as a fall back mechanism for situations where you want bring a lot of power on rapidly and you want to expedite it, and/or people don't have a lot of experience or need to have something to fall back on if negotiations fail.

With that in mind, you still have your basic contract and it is just some variations on some aspect in it. It is a matter of finding a deal that fits both parties.

Question:

What is your assessment of the type of projects being negotiated in which curtailment is an issue and the potential for financing these types of projects?

Answer:

Jan Hamrin - Hansen, McQuat, Hamrin & Rohde

A financeable contract is a contract in which a financial institution can anticipate the worst case scenario and still finance it, Dr. Hamrin explained. With that in mind, if you have an agreement that gives you the option to curtail at any time, then that kind of arrangement is not financeable.

However, if you have an agreement wherein you have an option that specifies the maximum amount of time eligible for curtailment (i.e. 600 hours) or if you have a good track record and have data to show how probable curtailment is and the frequency of curtailments, then you can determine the impact, she said.

The more specific the utility can be about the situation under which curtailment can be invoked, the more likely you will be able to finance such an agreement, better design your project and determine its economic feasibility. The issue is an open-ended liability versus something that is manageable and predictable.

Curt Maloy - New World Power

The bottom line according to Mr. Maloy, is if you cannot quantify the issue of curtailment then you will lose everybody's interest quickly.

Question:

What is the present price of avoided costs for Hawaiian Electric Company on Oahu?

Answer:

Dan Ching - Hawaiian Electric Company

This quarter, I believe it is about 3½¢ per kWh.

Question:

Under the new strategy plan being worked out by the local utilities, are avoided costs being redesigned to account for the externalities that are being discussed at the various IRP meetings in order to give a better economic picture of the actual price per kWh?

Answer:

Dan Ching - Hawaiian Electric Company

Currently, there is an avoided cost docket before the PUC. Perhaps some of the questions you are raising here may be brought up at these hearings but we will have to see.

Question:

In the "BOOT scenario" outlined in Dr. Hamrin's presentation, what kind of a time frame do you envision for the operational period before you turn it over to the utility?

Answer:

Jan Hamrin - Hansen, McQuat, Hamrin & Rohde

It depends upon the situation. It depends upon what the risk is that the utility perceives or that it is trying to mitigate by the original developer operating the project. It is a matter of agreement between the two parties to meet the needs of both, she explained.

In general, it is best to give enough time for the project to get through its initial shake down and to have some kind of a track record. Probably a minimum of two years of resource cycles is needed to give a better idea of resource availability and the O&M costs of operating. Beyond that, it depends. If it is too long a time period, you don't have as valuable an asset to transfer to the utility rate base. Whereas, if it is too short a time period, you may not have mitigated the risks of the technology or the resource that the utility is worried about.